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10/031,545	04/04/2002	Toshiaki Murata	KAW 2 0103	6557

7590

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EXAMINER

WONG, EDNA

ART UNIT

PAPER NUMBER

1753

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/031,545

Applicant(s)

MURATA ET AL.

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims **1-9** have been renumbered **15-23**.

Claim Rejections - 35 USC § 112

Claim **18** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18

lines 1-2, it is unclear what is meant by "the metal further comprises a step of irradiating ... ". How can a metal further comprise a step?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title; if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Method

I. Claims **15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-155887** ('887) in combination with **Ohmori et al.** (US Patent No. 6,414,213 B2).

The JP '887 teaches a method for purifying an oxygen containing gas (= indoor air) [page 1, ¶ [0003]] comprising the steps of:

(a) a first step of generating ozone in the oxygen containing gas **A** (page 2, ¶ [0012]; and page 3, ¶ [0014]);

(b) a second step of radiating ultraviolet rays of a medium wavelength of 200 nm or longer, but shorter than 300 nm (= 254 nm), to the gas treated in the first step to form active oxygen (page 3, ¶ [0014]); and

(c) a third step of radiating ultraviolet rays of a wavelength of 300 nm or longer, but shorter than 380 nm (= 375 nm), to the gas treated in the second step to convert said active oxygen into an oxygen molecule in a ground state (page 3, ¶ [0014]; and Fig. 2).

The first step radiates ultraviolet rays of a short wavelength of shorter than 200 nm to the oxygen containing gas (= 184 nm) [page 3, ¶ [0014]].

The JP '887 does not teach wherein at least one of said second step or said third step is conducted in the presence of a photocatalyst including at least one of particles of titanium oxide of an orthorhombic crystal system or particles of titanium oxide of an

orthorhombic crystal system supporting fine particles of another metal; and wherein said particles of titanium oxide of an orthorhombic crystal system are particles of brookite.

However, Ohmori teaches that an interior member with titanium oxide particles containing a brookite-type crystal present on the surface can decompose an organic material or nitrogen oxide in air by photocatalysis of the titanium oxide particle (col. 5, lines 14-37).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the method of JP '887 with wherein at least one of said second step or said third step is conducted in the presence of a photocatalyst including at least one of particles of titanium oxide of an orthorhombic crystal system or particles of titanium oxide of an orthorhombic crystal system supporting fine particles of another metal; and wherein said particles of titanium oxide of an orthorhombic crystal system are particles of brookite because this would have accelerated the decomposition of contaminants in the air and would have improved the percentage of decomposition of the contaminants as taught by Ohmori (col. 1, line 20 to col. 2, line 59; and col. 5, lines 14-37).

Furthermore, it has been held that the selection of a known material based on its

suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

II. Claim **18** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-155887** in combination with **Ohmori et al.** (US Patent No. 6,340,711 B1) as applied to claims 15-17 above, and further in view of **JP 10-249356** ('356).

The JP '887 combination is as applied above and incorporated herein.

JP '887 does not teach wherein the method further comprises a step of irradiating the oxygen containing gas treated in said third step with rays radiated from an infrared lamp and with rays radiated from a halogen lamp to dry the gas.

However, JP '356 teaches a similar method comprising heating the oxygen containing gas after radiating ultraviolet rays of a wavelength of 300 nm or longer, but shorter than 380 nm (= 300 to 420 nm) to hold a fixed temperature (abstract; and page 1, ¶ [0002]).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the method of JP '887 with wherein the method

further comprises a step of irradiating the oxygen containing gas treated in said third step with rays radiated from an infrared lamp and with rays radiated from a halogen lamp to dry the gas because this would have held the temperature fixed as taught by JP '356 (abstract; and page 1, ¶ [0002]).

Furthermore, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991); *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991) and MPEP § 2144.

Apparatus

III. Claims **19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-155887** ('887) in combination with **Ohmori et al.** (US Patent No. 6,414,213 B2).

JP '887 teaches an apparatus for purifying an oxygen containing gas comprising:

(a) a first treating room **34** having means of supplying the oxygen containing gas **A** and a device **341** for generating ozone in the supplied oxygen containing gas (page 3, ¶ [0015] and [0016]);

(b) a second treating room **42** connected to the first treating room and having a device **421** of radiating ultraviolet rays of a medium wavelength of 200 nm or longer, but shorter than 300 nm (page 3, ¶ [0015] and [0016]);

(c) a third treating room **44** connected to the second treating room and having a device **441** of radiating ultraviolet rays of a long wavelength of 300 nm or longer, but shorter than 380 nm (page 3, ¶ [0015] and [0016]); and

(d) means for discharging the oxygen containing gas treated in the third room outside the apparatus (Fig. 2).

JP '887 does not teach wherein at least a part of wall surfaces of at least one of said second treating room or said third treating room to which the ultraviolet rays are radiated being covered with a photocatalyst including at least one of particles of titanium oxide of an orthorhombic crystal system or particles of titanium oxide of an orthorhombic crystal system supporting fine particles of another metal; and wherein said particles of titanium oxide of an orthorhombic crystal system are particles of brookite.

However, Ohmori teaches that an interior member with titanium oxide particles containing a brookite-type crystal present on the surface can decompose an organic material or nitrogen oxide in air by photocatalysis of the titanium oxide particle (col. 5, lines 14-37).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the apparatus of JP '887 with wherein at least a part of wall surfaces of at least one of said second treating room or said third treating room to which the ultraviolet rays are radiated being covered with a photocatalyst including at least one of particles of titanium oxide of an orthorhombic crystal system or particles of titanium oxide of an orthorhombic crystal system supporting fine particles of another metal; and wherein said particles of titanium oxide of an orthorhombic crystal system are particles of brookite because this would have accelerated the decomposition of contaminants in the air and would have improved the percentage of decomposition of the contaminants as taught by Ohmori (col. 1, line 20 to col. 2, line 59; and col. 5, lines 14-37).

Furthermore, it has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

IV. Claim **22** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-155887** in combination with **Ohmori et al.** (US Patent No. 6,340,711 B1) as applied to claims 19-21 above, and further in view of **JP 10-249356** ('356).

The JP '887 combination is as applied above and incorporated herein.

JP '887 does not teach wherein said third treating room is further provided with a drying room wherein a portion for irradiating the oxygen containing gas treated in the third treating room, with rays radiated from an infrared lamp and a portion for irradiating the oxygen containing gas treated in the third treating room, with rays radiated from a halogen lamp are installed in order.

However, JP '356 teaches a similar method comprising heating the oxygen containing gas after radiating ultraviolet rays of a wavelength of 300 nm or longer, but shorter than 380 nm (= 300 to 420 nm) to hold a fixed temperature (abstract; and page 1, ¶ [0002]).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the method of JP '887 with wherein the method further comprises a step of irradiating the oxygen containing gas treated in said third step with rays radiated from an infrared lamp and with rays radiated from a halogen lamp to dry the gas because this would have held the temperature fixed as taught by JP '356 (abstract; and page 1, ¶ [0002]).

Furthermore, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It

is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991); *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991) and MPEP § 2144.

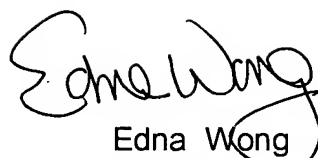
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1495.

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Edna Wong
Primary Examiner
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EW
August 14, 2003